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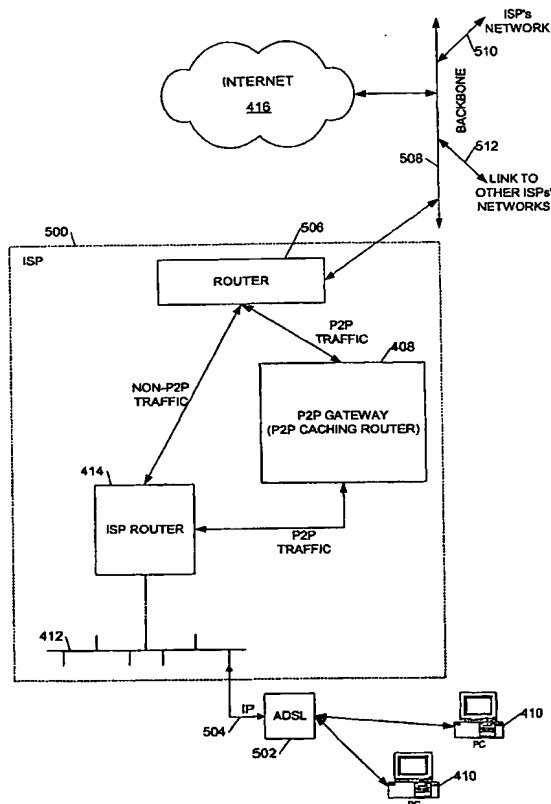
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[Continued on next page]

(54) Title: METHODS AND APPARATUS FOR TRAFFIC MANAGEMENT IN PEER-TO-PEER NETWORKS



(57) Abstract: This relates to routing and caching systems for reducing the bandwidth used by decentralised peer-to-peer (P2P) file sharing networks. A method of reducing traffic in a decentralised peer-to-peer network is described. The peer-to-peer network operates over an underlying network comprising first and second network portions. The method comprises routing a peer-to-peer message in one of said network portions with an intended destination in the other of said network portions to a gateway between peer-to-peer nodes residing on said first and second network portions; and controlling transport of said message at said gateway to limit propagation of said message into said other of said network portions.

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Published:

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L29/08 H04L12/56

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>ORAM ANDY (ED): "Peer-to-peer: Harnessing the Benefits of a Disruptive Technology passage"</p> <p>PEER-TO-PEER: HARNESSING THE BENEFITS OF A DISRUPTIVE TECHNOLOGY, XX, XX, 15 March 2001 (2001-03-15), pages 94-122, XP002259974</p> <p>the whole document</p> <p>-----</p> <p>-/--</p>	<p>1-5, 13-22, 30-38, 42,47-53</p>

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

4 June 2004

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Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

Inter national Application No
PCT/GB2004/000213

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>ANN HARRISON: "Packeteer: Another take on limiting P2P traffic". NETWORK WORLD PEER-TO-PEER NEWSLETTER, [Online] 3 April 2002 (2002-04-03), XP002282740 Retrieved from the Internet: URL:http://www.nwfusion.com/newsletters/fileshare/2002/01297785.html> [retrieved on 2004-05-28] the whole document</p>	<p>1-5, 13-22, 30-38, 42,47-53</p>
X	<p>US 2002/147810 A1 (ABDELAZIZ MOHAMED M ET AL) 10 October 2002 (2002-10-10)</p> <p>abstract paragraph [0404] - paragraph [0416]</p>	<p>1-5, 13-22, 30-38, 42,47-53</p>
A	<p>US 2003/009586 A1 (HARROW IVAN P ET AL) 9 January 2003 (2003-01-09)</p> <p>abstract paragraph [0033] - paragraph [0038]</p>	<p>1-5, 13-22, 30-38, 42,47-53</p>
A	<p>GISIK KWON AND KYUNG DONG RYU: "Efficient Peer-to-Peer File Sharing Exploiting Hierarchy and Asymmetry" IEEE/IPSJ SYMPOSIUM ON APPLICATIONS AND INTERNET (SAINT), [Online] 27 January 2003 (2003-01-27), - 31 January 2003 (2003-01-31) XP002282741 Orlando, Florida Retrieved from the Internet: URL:http://www.public.asu.edu/~kryul/papers/PASS-SAINT03.pdf> [retrieved on 2004-06-01] Abstract 2. PASS architecture</p>	<p>1-5, 13-22, 30-38, 42,47-53</p>

INTERNATIONAL SEARCH REPORT

International Application No. PCT/ GB2004/ 000213

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-5, 13-22, 30-38, 42, 47-53

A method, computer network message controller, gateway and carrier to limit propagation of peer-to-peer messages in other network portions.

2. claims: 6-8, 23-25, 39-41, 54-66

A peer-to-peer network cache, carrier, method and computer program comprising a data store storing data files.

3. claims: 9-12 , 26-29, 43-46, 67-74

A peer-to-peer network cache, carrier, method comprising a data store storing digital fingerprint data for identifying the files and corresponding file source identifiers

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2004/000213

Box II Observations where certain claims were found unsearchable (Continuation of Item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of Item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-5, 13-22, 30-38, 42, 47-53

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/GB2004/000213

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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